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ABSTRACT

This paper is concerned with issues related to reasons why some early childhood intervention programs may not have lived up to expectations. By intervention is meant the introduction of planned programing deliberately timed and arranged in order to alter the anticipated or projected course of development. Although an intervention program should be a hypothesis testing program (one that requires that the dependent as well as the independent variable be clearly articulated) until the data is in, this is not the usual case. Matters recommended for discussion in establishing an intervention program include: (1) the variety of subsystems comprising the human organism, (2) the relationship between systems longitudinally, (3) the when of intervention, i.e., identification of the significant epochs wherein particular interventions would have more relevance in getting the child on an appropriate "course" of growth, (4) the degree to which the child can assimilate and accomodate to the program, (5) the degree to which certain competencies or structures are susceptible to modification, (6) the relationship between the child and the broader environmental context, and (7) the interaction between the child and his parents. It is concluded that an airing of these matters will not only make intervention experience of value to the target children (minority group members), but will also facilitate the child's subsequent learning. (CK)

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DEVELOPMENTAL THEORY: ITS PLACE AND RELEVANCE IN EARLY INTERVENTION PROGRAMS

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As we all know, there has been a rash of early intervention programs begun and carried out with the noble intention of alleviating the educational disadvantages attributed to poverty and/or minority status. Noble as these efforts have been and honorable as the intentions of the investigators, these intervention efforts have been pursued for the most part with maximal pragmatic and minimal concern for developmental theory. Consequently, various programs have been developed, frequently eclectic in nature, fraught with a series of logical and psychological problems. The purpose of this paper is not to malign or impugn the motives or competencies of the policy-makers, the educators, or the developmental psychologists who have entered the fray, and have given much of their effort, energy and enlightened thought to cope with the immense problems defined as educational intervention. My concern is with some issues related to questions as to why some of the intervention programs may not have lived up to expectations; or to put it another way, what can be learned from them not only for programming but also for understanding growth and development.

It may be the most appropriate time to begin to look at the intervention question from a broad theoretical perspective, asking questions which raise theoretical issues, for by so doing, provisions can be made

[1]This paper was presented at the Biennial Meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April, 1971, as part of a symposium entitled "The Psychology of Early Intervention".

for hastening the impetus in thinking more conceptually about the question of early educational intervention.

By intervention, I mean the introduction of planned programming deliberately timed and arranged in order to alter the anticipated or projected course of development. Such projection, is, in effect, a set of assumptions beginning with a definition of the subject population's current status and milieu and then predicting from aggregate data of population characteristics that successful educational experiences at a later date will not occur. The planned intervention is aimed at altering this projected course of growth. The introduction of planned experiences as preparatory to entering the educational mainstream had as its major rationale the concept of a deficit model of functioning be it cognitive or affective. It is believed and/or assumed that children coming from a poverty level background, be they black, Indian or Mexican-American, or what not, have by their very nature and very existence, deficiencies and incompetencies in dealing with academic matters. The evidence of this has been retrospective, that is, using high incidences of educational failure and high unemployability. Further, the assumption is that "educational failure" is reducible to such limited deficits in the cognitive sphere in particular. Educational failure, if defined as the inability to perform at expected levels in school, is determined by a variety of variables ranging from poor nutrition to poor motivation and all combinations of what may rest in between. In spite of this complexity, early intervention programs are set up on what are presumed to be the necessary and sufficient conditions for academic success in elementary school.

Two assumptions seem to be frequently made regarding the remediation issue. One is that the particular so-called deficit is amenable to correction, and two is that if corrected, the corrections will persist over a sufficient time to enable the child to succeed in school. Thus, intervention has as its basic objective amelioration of presumed deficits in minority group populations. At this level of discourse, the question is not a theoretical one but a social one - social in the sense that one is trying to solve a social problem by applying as best one can, what one knows. It could be theoretical if the question were posed in terms of such issues as the modifiability of the human organism, by what means and where can such modifiability be accomplished. Further, the specification of the dependent variables must be made logically and/or psychologically, derived in terms of some theoretical base. Current intervention programs, for the most part, are not primarily directed as this kind of theoretical specification. (I hope it is clear that I am using the term theory in the conceptual sense and not in the common everyday speculative sense).

The issues do become theoretical as soon as programmers, accepting as they do academic goals as dependent variables, begin to ponder their methods, content, timing and pacing of intervention. As soon as attention is directed to those ends then the theoretical prediliction emerges, that is, theoretical biases and value judgments.

Implicit in the above paragraph is the assumption that the criteria of academic success are clear, as well as the antecedents of it. Up to now, most research has been of such recent vintage that the ripening effects are unknown. Since we do not have the advantage of the winemakers to wait patiently for such maturing, we extrapolate from our

body of tentative knowledge of school success, discovering that IQ is the best single predictor. Thus, if an intervention program increases IQ either at a statistically or psychologically significant level, the intervention program is a success. Yet we know that the probabilities that the child will subsequently be successful in school are low, since school success is based on more than IQ, e.g., motivational factors, compliance to teacher demands, etc. Thus, the use of IQ as a criterion for success is not based on any explicit theoretical analysis, but rather is based on a crude hunch that if one manipulates and increases IQ then, ipso facto, school success should emerge.

Would it not be wiser to set the issue in a way analogous to a job analysis, i.e., (1) to find the sufficient and necessary conditions for academic success by first defining in operational terms what the criteria are and what the necessary skills, competencies, and attitudes are for such achievement; (2) to train children in these prerequisites; by so doing the prediction follows that the greater the degree children acquire these skills, the more likely they will succeed in school. Instead of this type of model, we apparently prefer to accept the collective wisdom of the interventionists who base their objectives vis-a-vis academic success on biases emerging from the reading of existing literature or from their own value system. Varied programming results; each convinced it is the right road rather than articulating that each program should be a hypothesis testing program until the data is in. A hypothesis testing program requires that the dependent as well as the independent variables be clearly articulated. This is clearly not the usual case.

Parenthetically, it might be mentioned that there are some programs which make this effort in a clear and articulate way, e.g., the Englemann Becker or, as previously known, the Bereiter Englemann Program.

Even if academic success is to be the criteria of success, why this choice? Why the selection of the conventional educational system as the accepted objective? It is ironic, is it not, that when we view the educational system from first grade on in terms of intervention, there is the implicit acceptance of the status quo. True, the current Follow Through programs seem to have awakened to the fact that varied types of interventions have to follow preschool intervention. "Follow Through" does suggest alternatives to the current educational school scene. But it seems rather strange that we rationalize the change in the educational system, not as a function of what may be indigenously wrong with that system but rather that children coming from Head Start programs did not seem to maintain the gains. Thus, we are begging the question when it comes to institutional variables involved. To make this point clear, let us take an illustration: How naive it was to believe that if children go to a Head Start program for one year, they will thereupon have the necessary prerequisites to function in an environment which tends to be rigid, which tends to be highly structured, which tends not to be individualized, which tends to have teachers who are trained in rather traditional methods, where teachers have biases and expectations regarding children from minority groups, where schools are organized in lock step tight fashions, where, in effect, the entire system ranging from the teacher behavior to classroom expectancies rules, and regulations are highly contradictory to the atmospheres created

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in most Head Start programs irrespective of their variations. In effect, the analogy is that if you learn to ski on an artificial cloth slope, this qualifies you, once you've learned the basic skills, to have quick success in going down the Alps. The naivity of this expectation is and continues to be somewhat appalling.

Aside from the educational outcome objectives, intervention programs should have much to contribute to our understanding of development in general. Identification of the modifiability of the organism, the rate, quality and limit become important and significant problems of study. Intervention programs have tended to take for granted the unlimited potential of the individual for change, and at least seem to argue so. Therefore, creating programs assumes organismic change. If change does not occur, it is frequently attributed to program deficits rather than to the possibility that in particular areas alterations in behavior patterns, for reasons yet to be discovered, cannot perhaps be created.

If one takes the position that intervention programs are of value as sources of knowledge regarding the modifiability of the human organism, and if such knowledge will help further not only our understanding but our implementation and rationale for the program, then we would be coming to grips with some theoretical questions. But what kinds of questions need focusing is, of course, at issue. I have selected for this discussion questions, each of which I believe is critical and should have some relevance. I must say that time precludes an involved and lengthy discussion of all of these.

The first concern is based on the proposition that the human organism is made up of a variety of subsystems: the perceptual system, the cognitive system, the sensori-motor system, the language system, etc.; each of which has a relationship one to the other. Many programs point with particular emphasis to some of these systems with minimal consideration either theoretically or practically to other components. For example, there are programs which stress the language system. There are others which stress the perceptual system. There are others which combine the cognitive and language systems. The question is what is the relationship between these various systems? All programs are complex entities so that even emphasis on a particular system is not total. Consequently, teachers, programmers, and evaluators must be sensitized to the developmental issue of programatic factors which influence the effects of the particular system selected as the target. Conceivably, facilitative or inhibitory effects may occur. For example, one study, conducted under the sponsorship of the Evaluation and Research Center of Michigan State by Patricia Olmsted and myself, found that when children had a training program initially in exploring object characteristics and categorization skills, followed a year later by an attention training program in which focusing on specific object characteristics was emphasized, gains made after the initial training were undone, while, when attention training preceded categorization training, a facilitating effect occurred. In other words, the training sequence, classification followed by attention, resulted in the attention training

program inhibiting the effects of classification training, whereas attention training preceding classification training tended to facilitate classification training (Sigel and Olmsted, 1971).[1] In essence, what this demonstrates is that the same training programs have facilitating or inhibitory effects depending upon their place in the curriculum sequence.

Related to the above question is the consideration of the relationship between systems longitudinally. We are not certain what the relationship is between systems, particularly in programs which attempt to accelerate particular systems, especially in long-range terms. There are certain general considerations which are accepted. For example, while there is an increase in the capability of the organism to function on conceptual levels, he still responds in a more habituated manner to certain areas of life which elicit sensory motor responses. That is to say, the differences in acquisition of certain skills and competencies and the relations of these acquisitions to other aspects of the organism may vary over time. Thus, one cannot presume that such intersystemic relationships will be comparable from one period of life to another. If one views development as a system of hierarchically integrated structures which incorporate previous experiences, then one has to conceptualize and examine how the organism coordinates these various cognitive or affective structures from one point in time to

[1]Sigel, I.E. and Olmsted, P.P. "Modification of Classificatory Competence and Level of Representation among Lower Class Negro Kindergarten Children: A One-Year Longitudinal Study", in Hellmuth, J. (Ed.), The Disadvantaged Child III , Bruner/Mazel, Inc., New York, New York, 1971.

another. The assumption that comparable interaction between systems will occur at each developmental level is not warranted. Thus, it may be, for example, that language training at a certain point in time may facilitate the development of thought. It may well be that language acquisiton at another point in time no longer serves this function, but serves other functions, e.g., the social relationship. Thus language acquisition is functionally different in the organism's life space at different time periods. If this perspective is part of the program builder's conceptual orientation, then he may be in a position to examine the question empirically and there is a need for such data. Thus, we ask what is the relationship between systems and within systems, both cross-sectionally and longitudinally. The question of systemic relationships in the temporal context brings up the next point, namely the timing of intervention.

Increased argument is expressed for the proposition that the earlier the intervention the better, as if to say, if you get the rocket on course at the beginning of the flight, the trajectory will remain as expected for the long haul. Aside from the fact that we know there is constant monitoring of that trajectory in rocketry and constant adjustments made, educators somehow do not necessarily accept this analogue. Rather, the assumption is that early experience will or can have long-term effects even if the total environment is changed. There is little evidence to support the notion that the earlier you start the better. This belief implies a certain commitment to primacy and the establishment of appropriate orientations, skills and structures which will result in appropriate resolution of subsequent problems. The question still is the <u>when</u> of intervention. The issue is theoretical.

The when of intervention requires identification of the significant epochs wherein particular interventions would have more relevance in getting the child on the appropriate "course" of growth. It is unlikely that one would proceed to teach an infant to be a track star. This, of course, has sort of a ludicrousness about it which we can all understand, for we seem to have some feel for the requirements of being a track star, and we also have some understanding of the infant's capabilities. But the issue is one of the principles that we tend to pay too little attention to, namely, when certain interventions should be undertaken and what their content should be. In other words, the timing of input for compensatory activities, irrespective of the developmental model, has to be carefully monitored in terms of its appropriateness. In essence, the fundamental problem is the determination of when intervention occurs and what this does to the vertical and horizontal inter-systemic relationship.

A related issue concerns the degree to which the children can assimilate and accompdate to the program. This capability is not only a function of the developmental level of the child but also of the type of experiences involved. The variety, the intensity and the extensity of the stimulation are part in parcel of the basic issue before us. Much work has to be done on the information processing capability of the developing child in relation to his developmental level. For efficient and effective programming, this issue has to be met head on. Careful assessment of the relationship between input and output becomes germane.

Let us turn to some developmental issues relevant to outcomes. There seems to be a general belief that development is overall a cumulative process in which experiences in T1 influence outcomes at T2. The cumulative impact, however, may express itself in various effects at different times. There may be developmental periods which are consolidations of previous experiences and which at that time may be independent one of the other. Certain cognitive skills may be independent of each other in early childhood but not later. It is conceivable that T1 experiences have to be hooked on to other experiences so that the combination of these will influence behavior at T5. For example, one can conceive of such variables as perceptual motor skills which, when combined with symbolic activity, enables the child to read. With either of these not present, he could not learn to read. Thus the cumulative effect and the coordination of these two domains enables a third skill to develop. This speaks to the fact that development, although cumulative and continuous, does not only influence particular outcomes in the immediate but in the long-term as it connects to additional acquisitions.

Another way of examining this issue of cumulative impact and antecedant consequent relationships is the concept of stage setting properties of experiences. This is best exemplified by some physical growth phenomena which set the stage for certain outcomes, thereby participating in a means-end relationship. Walking, for example, is an outcome which occurs when the child has reached certain physical and motoric capabilities wherein he can balance himself and control certain body movements. As a consequence of this achievement, the child's perspective

of the world alters, and he has a new set of competencies to coordinate. In the course of this, he also begins to have a vertical orientation toward the world. Walking does not cause a vertical orientation, but walking enables a child to alter his perspective of the world. Further, it sets the stage for a host of other behaviors which become derivative of such a vertical view of the environment. To be more explicit, vertical views of the world have some impact in body orientation in space. Again this is not caused by walking, rather walking enables the outcome to occur. The stage setting concept speaks to the fact that certain phenomena occur which set the stage in a preparatory sense, thereby enabling the organism to accomplish other types of tasks.

Another theoretical question of interest is the degree to which certain competencies or structures are susceptible to modification; that is, they may be reversible or irreversible, extended or not extended. In a sense, this is the old question that was discussed under the guise of maturation and learning. Are there some organismic characteristics which once acquired cannot be altered: Once the child has learned to speak in the normal course of events, is this a reversible or irreversible process, and if so, under what conditions? On the other hand, certain perceptual phenomena such as the perception of illusions may not be modifiable. For those who espouse a Piagetian type position, modifiability can only occur when the individual has the necessary cognitive structures. It is not the situation where you can teach anything to anybody at anytime, even if you do it properly. To do it properly would mean not to teach it at that point in time, because the organism is, in effect, not ready. Once these things are acquired,

however, can they be modified either by eliminating them or accelerating them? If they can be modified, can they be modified in an accelerative fashion by enhancing and increasing complexity, or could they be modified at the same level but merely broadened; or are some processes irreversible and once acquired cannot be undone?

Another perspective is also relevant, namely, the relationship between the child and the broader environmental context. If intervention refers to alteration of the expected course of growth, other things being equal, then intervention programs are potential sources of considerable disequilibrium. The child begins to live in two cultures: the culture of the intervention program environment and the culture of the home. This is not the cliché issue of conflict of home and school so commonly discussed among middle-class educators. Rather, it refers to the fundamental life-style changes for the child and for the parent. Generally, the intervention proceeds not only to alter the anticipated course of the child's development but also the ongoing patterns of parental behaviors, attitudes and feelings. Imbalance is created by changing both participants, with the change of the parent toward greater orientation toward the child and vice versa. The parent is now regarded as a critical instrument in the child's growth. In fact, it is this relationship that defines the parent's place in the intervention program. The child now becomes the center of attention and the parent's behaviors are in need of change to support and to maintain and perhaps instigate to modifications in the child. Restructuring of the equilibrium in the family introduces the set of change variables that need careful definition and assessment. The assertions above are based on the view of the family as a social system which, by virtue of its socio-cultural bias

has developed a set of bondings which keep it in a state of dynamic equilibrium. It should be kept in mind that in spite of assertions of disorganization and disarray of the so-called economically disadvantaged families, this view, even if true, does not deny that some type of balance exists which contributes to some of the solidity of its organizational strength in spite of the stress and strain.

Intervention, then, fosters alteration of behavior patterns in competencies of the child with the potential of modifying the child's views, expectations, and behaviors and response to significant others in his life. Consideration of this change necessitates consideration of concomittant responses in the parent. The critical features here are in the timing of the change in each and their complimentary nature. If the child is becoming increasingly verbal, for example, and the parent has not proceeded to cope appropriately with this, a state of disequilibrium is created. The child's behavior is, in effect, altered prior to the acquisition of appropriate response techniques on the part of the parent. For these conditions, it is conceivable that learnings acquired in the nursery may be inhibited and extinguished. Thus, the timing of the modification of members in this system must be carefully considered in terms of their interdependence.

This familial issue, while in part a value and ethical question, discussed in this symposium by Dr. Robert Hess of Stanford, speaks to a crucial conceptual problem. How to conceptualize the interaction and how to deal with it methodologically is still to be resolved. It may well be that the significant factors obfuscating results and behavioral and social change in the preschool may be due to the divergence between home and school, not in basic values so much as in the degree to which

the two sets of behaviors are interacting in a way which preclude the creation and maintenance of change.

Implicit then in the above discussion is the need to conceptualize the family as one dynamic system interacting with the nursery school which is the second dynamic system. The degrees to which these two overlap or separate become, in my estimation, a significant factor in facilitating or inhibiting growth. The issue becomes particularly cogent with children coming from certain minority groups where family organization may be highly variable and the particular kinds of organization may have short-lived tenure. The stability or instability of the systemic arrangements in the family have conceivably important effects on the child and this may be much more significant than certain elements of the educational program itself.

These assertions also accentuate the concern we must have for the social significance of intervention where the activities as defined by the program may have certain positive effects on the child in the school setting but may have disastrous effects in the home situation. The degree to which the parents evolve coping mechanisms or modifications of their own behavior to sustain and support these presumed new found gains in the children raises a question of considerable ethical, practical and theoretical interest.

One may extend this latter argument of systemic relationships to the broader environment, but it seems to me the principle is clear; the child as a member of the nursery school group has an overlapping membership in other groups and the degree to which we can identify these overlapping memberships and the function they have for the child's development may well be a significant determiner of the kind and quality of success the child has.

There is no doubt that in early intervention we are dealing with a host of complexities that our science has not been prepared to deal with. The challenge for developmental psychologists is clear. The need is to identify variables functioning in particular settings, to create adequate measuring instruments (which I have not even alluded to), and to monitor the relevant environment which can and no doubt does influence the very nature of the what the intervention program intends to do. If the child is on target as far as the nursery school is concerned, chances are he needs other sustaining forces to keep him moving in the appropriate direction. When these consistent forces are not present, it is no surprise that the child may abandon his new found learnings and revert back to what was a more appropriate and comfortable earlier stage.

For me, it is very important to conceptualize not only the growth of the child but also the system within which he is functioning, e.g., to be aware of and to identify the ecological systemic variables ranging from school room equipment and placement of equipment to the child's relationship to his own mother. Granted that we cannot be as precise although as workers involved in verbal learning studies appear to be, we must be increasingly precise; we must take the time to identify or at least to define the significant variables which we are looking at and examine these in terms of logical and necessary outcomes. In this way, we create the situation where the criterion outcomes, such as school success, are defined with such explicitness that the appropriate intervention program determines the necessary and sufficient precursors for predefined outcomes.

This paper is not intended as a cynical and destructive assessment of current intervention programs. Rather, it is in my view a challenge to all of us to begin to specify in greater detail what the inputs are for the child, to define his reasonable living space, and to define which of those factors may alter the course of growth in spite of what happens in the nursery school.

Finally, to raise the necessary questions would not only make these experiences of value to children from minority groups, but hopefully would enlarge our view of intervention in its broadest sense as appropriate for all kinds of children. If we begin to think in those terms, the intervention process may become more articulated, the conditions more clearly defined, and the technologies worked out so that precise, on-target technologies could be employed to produce the necessary and sufficient outcomes which will facilitate the child's subsequent learning.